SPR 45-1 ✓

FOREST PEST CONDITIONS
DURING 1980
IN THE
PACIFIC NORTHWEST

Compiled by

USDA Forest Service
Oregon State Department of Forestry
Washington State Department of Natural Resources
Oregon Department of Agriculture

INSECT CONDITIONS IN BRIEF - 1980

Insect damage in forests of the Pacific Northwest continued to decline from the peak reached during 1977-78. This decline covered a broad spectrum including all bark beetles and most defoliators.

Mountain pine beetle continued as the major bark beetle pest with the impact greatest to lodgepole pine. Damage to sugar and lodgepone pines has increased in Oregon. Loss to the western pine beetle was less than half that reported in 1979 but still significant at over 8 million board feet.

Although defoliation from western spruce budworm declined in the region, new active areas were located in eastern Oregon. No activity was recorded on the area chemically treated during 1979 on the Warm springs Indian Reservation. No tussock moth defoliation was recorded during the aerial survey, but adult moths were trapped in small numbers in several locations in pheromone traps. Blackheaded budworm defoliation was mapped on a small area on the Mt. Baker National Forest.

Miscellaneous insects, winter, and bear damage was also at low levels during 1980.

TREND OF MAJOR INSECT PESTS IN PACIFIC NORTHWEST 1976-80

Insect	Acres Infested				
	1976	1977	1978	1979	1980
Douglas-fir Beetle	189,160	103,140	46,450	37,480	13,650
Mt. Pine Beetle	1,758,670	1,712,290	1,910,240	1,225,710	1,086,250
Western Pine Beetle	193,840	114,760	241,930	110,800	52,970
Fir Engraver	85,420	21,070	41,410	25,710	18,550
Flatheaded Borer	8,290	520	13,360	1,040	0
W. Spruce Budworm	1,100,020	1,194,710	198,950	406,660	132,430
D-F Tussock Moth	0	0	10,080	0	0

FOREST PEST CONDITIONS
PACIFIC NORTHWEST
1979-1980

Pest	Acres Infested 1979	Acres Infested 1980	Trend Percentage
Douglas-fir Beetle	37,480	13,650	-63
Douglas-fir Engraver	30	30	Static
Fir Engraver	25,710	18,550	-27
Mt. Pine Beetle	1,225,710	1,086,250	-11
Flathead Borer	1,040	0	Out
Pine Engraver	21,690	32,610	+50
Western Pine Beetle	110,600	52,970	-52
Saw Flies	1,190	0	Out
W. Spruce Budworm	406,660	132,430	-67
Larch Looper	44,900	0	Out
Blackheaded Budworm	0	840	New
Balsam Woolly Aphid	2,810	4,740	+68
Spruce Aphid	1,940	200	-89
Bear Damage	25,340	1,240	-95
Winter Damage	33,470	1,150	-96
	1,938,570	1,344,660	-30

TREND OF FOREST PEST CONDITIONS
OREGON
1979-1980

Pest	Acres Infested		Trend Percentage
	1979	1980	
D-F Beetle East Side	18,070	2,010	-89
D-F Beetle West Side	3,810	4,450	+16
Douglas-fir Engraver	30	0	None
Fir Engraver	14,740	6,280	-57
Mt. Pine Beetle (P.P.)	362,770	179,860	-50
Mt. Pine Beetle (S.P.)	710	1,820	+156
Mt. Pine Beetle (W.W.P.)	9,640	3,460	-64
Mt. Pine Beetle (L.P.P.)	726,850	817,100	+12
Pine Engraver	13,440	21,240	+58
Western Pine Beetle	89,240	44,790	-50
Balsam Woolly Aphid	360	40	-89
Spruce Aphid	190	0	None
Spruce Budworm	28,590	5,380	-79
Bear Damage	3,760	80	-98
Winter Damage	5,180	540	-90
Flatheaded Borer	990	0	None
	1,278,370	1,087,050	14.9

TREND OF FOREST PEST CONDITIONS
WASHINGTON
1979-1980

Pest	Acres Infested		Trend Percentage
	1979	1980	
D-F Beetle East Side	14,250	6,700	-53
D-F Beetle West Side	1,350	490	-64
Douglas-fir Engraver	0	30	New
Fir Engraver	10,970	12,270	+12
Mt. Pine Beetle (P.P.)	37,810	29,660	-22
Mt. Pine Beetle (W.W.P.)	60,830	41,390	-32
Mt. Pine Beetle (L.P.P.)	26,050	12,960	-50
Pine Engraver	8,290	5,940	-28
Western Pine Beetle	21,560	8,180	-62
Balsam Woolly Aphid	2,450	3,030	+24
Spruce Aphid	1,750	200	-89
Spruce Budworm	378,070	89,440	-76
Bear Damage	21,580	800	-96
Winter Damage	28,290	610	-98
Flatheaded Borer	50	0	None
	613,300	212,540	-65.3

East Side Douglas-fir Beetle, *Dendroctonus Pseudotsugae* Hopk.

Douglas-fir beetle activity in the Pacific Northwest east of the Cascade Mountains continued to decline as it has for the past several years. Acres infested declined from the 32,300 mapped in 1979 to 8,710 in 1980. A major portion of this loss occurred on the Umatilla and Wallowa-Whitman National Forests on areas defoliated by the Douglas-fir tussock moth during the 1972-74 outbreak and on western spruce budworm-defoliated areas in north-central Washington.

EXTENT OF DOUGLAS-FIR BEETLE, EAST SIDE DF
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS NUMBER	INFESTATION CENTERS ACRES	NUMBER OF TREES	VOLUME MBF
TOTAL DESCHUTES NF	3	140	25	15.000
TOTAL UMATILLA NF	25	380	170	94.400
TOTAL WALLOWA-WHITMAN NF	48	1440	865	467.100
TOTAL WARM SPRINGS IR	2	30	10	7.000
TOTAL CENTRAL OREGON	1	20	5	2.700
TOTAL OREGON	79	2010	1075	586.200
TOTAL OKANOGAN NF	52	2800	858	472.600
TOTAL UMATILLA NF	23	400	195	107.800
TOTAL WENATCHEE NF	37	860	518	286.000
TOTAL COLVILLE NF	16	310	120	66.500
TOTAL COLVILLE IR	11	460	105	52.500
TOTAL YAKIMA IR	15	770	435	239.500
TOTAL NORTHEAST WA	8	80	50	27.800
TOTAL GLENWOOD	36	890	435	240.100
TOTAL NORTH CASCADES NP	1	130	40	38.800
TOTAL WASHINGTON	199	6700	2756	1531.600
TOTAL FOR REGION	278	8710	3831	2117.800

West Side Douglas-fir Beetle, *Dendroctonus Pseudotsugae* Hopk.

Aerial surveys of West Side Douglas-fir beetle recorded a slight decrease in acres infested, but a major increase in loss volume from 1.7 million board feet in 1979 to 2.2 million during 1980. The major loss occurred on the Willamette National Forest in Oregon and on the adjacent Umpqua NF. Losses on these two areas accounted for 50 percent of the total for the region.

Currently being kept under observation are Gifford Pinchot National Forest and adjacent State and private timber stands damaged or destroyed by the volcanic action of Mt. St. Helens. Conditions in these stands closely resemble the blowdown and flood damage to forests where former outbreaks of the Douglas-fir beetle developed. Plans have been made to salvage as much damaged timber as possible before 1983 when developing beetle broods are expected to emerge, attack, and kill healthy green trees surrounding the volcanic area.

EXTENT OF DOUGLAS-FIR BEETLE, WEST SIDE DF
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL MT. HOOD NF	22	640	165	213.700
TOTAL ROGUE RIVER NF	17	320	120	217.700
TOTAL SISKIYOU NF	9	230	70	152.200
TOTAL SIUSLAW NF	9	340	62	152.300
TOTAL UMPQUA NF	35	830	219	293.400
TOTAL WILLAMETTE NF	59	2040	563	874.400
TOTAL COOS-DOUGLAS	3	50	15	25.500
TOTAL OREGON	154	4450	1214	1929.200
TOTAL GIFFORD PINCHOT NF	18	250	175	147.000
TOTAL MT. BAKER-SNOQUALMIE NF	15	230	170	165.300
TOTAL MT. RAINER NP	1	10	5	4.200
TOTAL WASHINGTON	34	490	350	316.500
TOTAL FOR REGION	188	4940	1564	2245.700

Douglas-fir engraver, *Scolytus Unispinosus* (Lec.)

Activity of the Douglas-fir engraver continued at a low level in Washington on the Gifford Pinchot and Mt. Baker-Snoqualmie National Forests. No activity was recorded for this beetle in Oregon.

EXTENT OF DOUGLAS-FIR ENGRAVER
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL GIFFORD PINCHOT NF	1	10	5	.300
TOTAL MT. BAKER-SNOQUALMIE NF	1	20	50	3.000
TOTAL WASHINGTON	2	30	55	3.300
TOTAL FOR REGION	2	30	55	3.300

Fir Engraver, *Scolytus Ventralis* (Lec.)

There was a significant decrease in fir engraver activity in Oregon, both in acreage infested and volume lost. However, in Washington there was a slight increase in both acreage and volume losses. A major part of this loss occurred on the east slope of the Cascade Range on the Yakima Indian Reservation and Wenatchee and Okanogan National Forests.

EXTENT OF FIR ENGRAVER
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL DESCHUTES NF	11	850	140	56.000
TOTAL FREMONT NF	11	400	305	122.000
TOTAL MT. HOOD NF	11	450	100	40.000
TOTAL OCHOCO NF	2	50	10	2.600
TOTAL ROGUE RIVER NF	41	1390	335	127.300
TOTAL SISKIYOU NF	7	190	165	33.000
TOTAL UMATILLA NF	48	690	384	97.700
TOTAL UMPQUA NF	1	10	5	1.900
TOTAL WALLOWA-WHITMAN NF	26	950	358	68.400
TOTAL WILLAMETTE NF	2	30	10	3.800
TOTAL WINEMA NF	27	1240	362	137.700
TOTAL CRATER LAKE NP	1	30	8	3.000
TOTAL OREGON	188	6280	2182	693.400
TOTAL GIFFORD PINCHOT NF	7	190	55	22.000
TOTAL MT. BAKER-SNOQUALMIE NF	4	150	85	34.000
TOTAL OKANOGAN NF	59	4430	2638	660.200
TOTAL UMATILLA NF	70	1730	870	219.800
TOTAL WENATCHEE NF	44	2140	1005	301.500
TOTAL COLVILLE NF	31	590	290	73.400
TOTAL COLVILLE IR	7	360	55	14.000
TOTAL SPOKANE IR	2	70	105	26.300
TOTAL YAKIMA IR	25	2260	1122	336.600
TOTAL NORTHEAST WA	15	280	180	45.300
TOTAL GLENWOOD	3	30	28	7.100
TOTAL NORTH CASCADES NP	2	40	70	21.000
TOTAL WASHINGTON	269	12270	6503	1761.200
TOTAL FOR REGION	457	18550	8685	2454.600

Mountain Pine Beetle, *Dendroctonus Ponderosae*, Hopk.

Although mountain pine beetle losses continued to decline throughout the region, this beetle did hold on to its current title as the most destructive tree killer in the Pacific Northwest. Losses continued to decline in older areas of the outbreak in north east Oregon, since the most suitable host material has been killed. Losses to ponderosa, lodgepole, white, and sugar pines totaled in excess of 112 million board feet, with 76 million of this volume in lodgepole pine stands in Oregon. Greatest losses in Washington occurred on the Colville National forest and the Ross Lake area of the North Cascades National Park. Overall regional losses declined from 186 million board feet in 1979 to 112 million in 1980.

EXTENT OF MOUNTAIN PINE BEETLE, LODGEPOLE PINE
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL DESCHUTES NF	325	300370	405201	28366.100
TOTAL FREMONT NF	145	59530	147352	10316.000
TOTAL MALHEUR NF	354	149680	174242	12199.400
TOTAL MT. HOOD NF	5	180	95	5.700
TOTAL OCHOCO NF	74	45830	83817	5028.900
TOTAL ROGUE RIVER NF	21	2640	1910	95.800
TOTAL SISKIYOU NF	2	60	15	.800
TOTAL UMATILLA NF	234	93440	119071	8336.200
TOTAL UMPQUA NF	22	1820	1313	65.800
TOTAL WALLOWA-WHITMAN NF	446	97540	61402	4302.700
TOTAL WILLAMETTE NF	39	2140	785	55.500
TOTAL WINEMA NF	271	57550	103169	7224.600
TOTAL WARM SPRINGS IR	9	1560	3570	250.000
TOTAL CENTRAL OREGON	4	250	220	15.400
TOTAL CRATER LAKE NP	12	4510	7280	509.700
TOTAL OREGON	1963	817100	1109442	76772.600
TOTAL OKANOGAN NF	9	720	410	28.800
TOTAL UMATILLA NF	7	250	305	21.400
TOTAL WENATCHEE NF	4	240	110	7.700
TOTAL COLVILLE NF	58	8030	30825	2158.300
TOTAL COLVILLE IR	6	950	555	38.900
TOTAL SPOKANE IR	3	30	35	2.500
TOTAL YAKIMA IR	16	1050	1030	72.100
TOTAL NORTHEAST WA	1	10	15	1.100
TOTAL GLENWOOD	6	130	65	4.700
TOTAL NORTH CASCADES NP	16	1550	2173	152.300
TOTAL WASHINGTON	126	12960	35523	2487.800
TOTAL FOR REGION	2089	830060	1144965	79260.400

EXTENT OF MOUNTAIN PINE BEETLE, PONDEROSA PINE
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL DESCHUTES NF	56	10480	3510	280.800
TOTAL FREMONT NF	108	8860	10968	877.400
TOTAL MALHEUR NF	188	31700	21327	1068.800
TOTAL MT. HOOD NF	3	50	20	1.100
TOTAL OCHOCO NF	43	4670	2318	116.900
TOTAL ROGUE RIVER NF	65	2110	720	43.200
TOTAL SISKIYOU NF	8	240	46	2.800
TOTAL UMATILLA NF	264	45670	41742	9183.200
TOTAL UMPQUA NF	2	80	26	1.600
TOTAL WALLOWA-WHITMAN NF	398	61640	33618	7738.800
TOTAL WILLAMETTE NF	2	20	40	2.000
TOTAL WINEMA NF	79	8190	3004	240.300
TOTAL UMATILLA IR	2	50	30	1.500
TOTAL WARM SPRINGS IR	23	2500	2471	173.200
TOTAL CENTRAL OREGON	45	3520	2382	119.800
TOTAL CRATER LAKE NP	2	80	20	1.600
TOTAL OREGON	1288	179860	122242	19853.000
TOTAL GIFFORD PINCHOT NF	1	10	5	.300
TOTAL OKANOGAN NF	99	9130	5385	270.500
TOTAL UMATILLA NF	8	410	100	22.000
TOTAL WENATCHEE NF	162	10720	4702	282.100
TOTAL COLVILLE NF	56	1190	860	44.000
TOTAL COLVILLE IR	59	2990	1190	60.100
TOTAL SPOKANE IR	3	50	35	1.900
TOTAL YAKIMA IR	56	3970	2075	124.500
TOTAL NORTHEAST WA	46	500	445	23.700
TOTAL GLENWOOD	33	690	420	25.200
TOTAL WASHINGTON	523	29660	15217	854.300
TOTAL FOR REGION	1811	209520	137459	20707.300

EXTENT OF MOUNTAIN PINE BEETLE, W. WHITE PINE
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS NUMBER	INFESTATION CENTERS ACRES	NUMBER OF TREES	VOLUME MBF
TOTAL DESCHUTES NF	2	90	10	4.000
TOTAL MT. HOOD NF	19	1110	331	175.600
TOTAL ROGUE RIVER NF	7	330	50	23.000
TOTAL SISKIYOU NF	5	110	50	7.600
TOTAL UMPQUA NF	14	350	92	42.300
TOTAL WALLOWA-WHITMAN NF	8	490	310	18.600
TOTAL WINEMA NF	3	450	45	13.500
TOTAL WARM SPRINGS IR	13	480	250	100.000
TOTAL CRATER LAKE NP	1	50	14	5.600
TOTAL OREGON	72	3460	1152	390.200
TOTAL GIFFORD PINCHOT NF	16	1310	1100	583.400
TOTAL MT. BAKER-SNOQUALMIE NF	17	330	195	88.300
TOTAL OKANOGAN NF	53	3260	2448	1321.900
TOTAL WENATCHEE NF	368	26230	15589	7018.900
TOTAL COLVILLE NF	112	6420	2715	1223.400
TOTAL YAKIMA IR	23	1200	750	338.000
TOTAL NORTHEAST WA	10	330	160	72.300
TOTAL GLENWOOD	2	20	15	8.000
TOTAL MT. RAINIER NP	1	10	20	9.000
TOTAL OLYMPIC NP	83	1780	1910	764.000
TOTAL NORTH CASCADES NP	5	500	480	216.000
TOTAL WASHINGTON	690	41390	25382	11643.200
TOTAL FOR REGION	762	44850	26534	12033.400

EXTENT OF MOUNTAIN PINE BEETLE, SUGAR PINE
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL ROGUE RIVER NF	5	240	40	41.600
TOTAL SISKIYOU NF	21	1070	200	158.800
TOTAL WINEMA NF	4	510	620	341.100
TOTAL OREGON	30	1820	860	541.500
TOTAL FOR REGION	30	1820	860	541.500

Pine Engraver, *Ips Pini* (Say)

Activity of the pine engraver has increased, although the size of the area infested has not returned to pre-1979 levels. There was a 50 percent increase in infested acreage with activity centered on the Wallowa-Whitman, Umatilla, and Malheur National Forests in eastern Oregon.

EXTENT OF PINE ENGRAVER
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION			
		LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL DESCHUTES NF	14	360	0	110	470
TOTAL FREMONT NF	47	120	1670	0	1790
TOTAL MALHEUR NF	105	5730	1380	110	7220
TOTAL MT. HOOD NF	6	90	0	0	90
TOTAL OCHOCO NF	30	270	300	50	620
TOTAL ROGUE RIVER NF	35	790	550	0	1340
TOTAL SISKIYOU NF	2	0	0	110	110
TOTAL UMATILLA NF	65	4020	100	0	4120
TOTAL UMPQUA NF	1	70	0	0	70
TOTAL WALLOWA-WHITMAN NF	93	9340	490	0	9830
TOTAL WINEMA NF	4	130	0	0	130
TOTAL WARM SPRINGS IR	5	50	20	10	80
TOTAL CENTRAL OREGON	19	270	40	0	310
TOTAL OREGON	426	21240	4550	390	26180
TOTAL OKANOGAN NF	45	2930	150	0	3080
TOTAL UMATILLA NF	9	140	0	0	140
TOTAL WENATCHEE NF	15	490	0	170	660
TOTAL COLVILLE NF	3	60	0	0	60
TOTAL COLVILLE IR	12	1040	20	0	1060
TOTAL YAKIMA IR	2	1230	0	40	1270
TOTAL NORTHEAST WA	5	50	0	0	50
TOTAL GLENWOOD	7	0	80	30	110
TOTAL WASHINGTON	98	5940	250	240	6430
TOTAL FOR REGION	524	27180	4800	630	32610

Western Pine Beetle, *Dendroctonus Brevicomis* Le Conte.

Losses from the western pine beetle continued to decline. Infested area dropped from 227,000 acres in 1978 to 110,000 in 1979, followed by a 52 percent reduction to 52,000 acres in 1980. Current losses are greatest on the Fremont, Malheur, and Winema National Forests in Oregon and on the Yakima Indian lands and Wenatchee National Forests in Washington. All forests and Indian Reservations east of the mountains have received some loss.

EXTENT OF WESTERN PINE BEETLE
IN 1980 BY REPORTING AREA AND B.F. LOSS

REPORTING AREA	INFESTATION CENTERS		NUMBER OF TREES	VOLUME MBF
	NUMBER	ACRES		
TOTAL DESCHUTES NF	37	1670	297	235.800
TOTAL FREMONT NF	143	6090	3443	2723.500
TOTAL MALHEUR NF	101	9260	2275	1638.000
TOTAL MT. HOOD NF	4	330	25	22.000
TOTAL OCHOCO NF	46	1460	310	246.900
TOTAL ROGUE RIVER NF	28	1020	145	95.600
TOTAL SISKIYOU NF	3	120	15	7.800
TOTAL UMATILLA NF	52	2850	420	268.800
TOTAL UMPQUA NF	1	10	5	2.600
TOTAL WALLOWA-WHITMAN NF	66	4610	475	368.300
TOTAL WINEMA NF	148	16390	1377	1156.500
TOTAL WARM SPRINGS IR	11	260	65	45.500
TOTAL CENTRAL OREGON	10	230	105	67.200
TOTAL CRATER LAKE NP	2	490	40	32.000
TOTAL OREGON	652	44790	8997	6910.500
TOTAL GIFFORD PINCHOT NF	3	110	15	8.100
TOTAL OKANOGAN NF	14	490	90	50.100
TOTAL UMATILLA NF	2	100	20	12.800
TOTAL WENATCHEE NF	46	2030	668	293.900
TOTAL COLVILLE NF	9	450	60	32.400
TOTAL COLVILLE IR	28	1010	235	120.600
TOTAL YAKIMA IR	33	3720	1337	855.700
TOTAL NORTHEAST WA	4	180	25	13.500
TOTAL GLENWOOD	3	90	25	13.300
TOTAL WASHINGTON	142	8180	2475	1400.400
TOTAL FOR REGION	794	52970	11472	8310.900

Balsam Woolly Aphid, *Adelges Piceae* (Ratz)

Number of visible infestation centers increased from 16 in 1979 to 89 in 1980, but only 60 acres of heavy defoliation were recorded. Of the 4,740 acres mapped, all the Oregon area was in the Wilammette area and the majority of the Washington area was in the Mt. Baker-Snoqualmie Unit.

EXTENT OF BALSAM WOOLLY APHID
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION			
		LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL WILLAMETTE NF	29	40	900	60	1000
TOTAL OREGON	29	40	900	60	1000
TOTAL MT. BAKER-SNOQUALMIE NF	48	2430	710	0	3140
TOTAL OLYMPIC NF	6	380	0*	0	380
TOTAL WENATCHEE NF	2	70	0	0	70
TOTAL OLYMPIC NP	4	150	0	0	150
TOTAL WASHINGTON	60	3030	710	0	3740
TOTAL FOR REGION	89	3070	1610	60	4740

Western Spruce Budworm, *Choristoneura Occidentalis* Free.

Budworm-defoliated acreage continued to decline in the region. Activity continues to be greatest on untreated areas of the north Okanogan Valley and in the North Cascades National Park. Treatment of 34,400 acres on the Warm Springs Indian Reservation during 1979 accounted for a major decrease in infested areas in Oregon. However, new budworm activity centers have been observed on the Umatilla and Wallowa-Whitman Units with the severest defoliation occurring on Coalmine Hill on the Heppner Ranger District.

EXTENT OF SPRUCE BUDWORM
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL UMATILLA NF	7	2020	260	0	2280
TOTAL WALLOWA-WHITMAN NF	15	3360	0	0	3360
TOTAL OREGON	22	5380	260	0	5640
TOTAL OKANOGAN NF	100	46840	10310	2290	59440
TOTAL WENATCHEE NF	41	13370	5730	2300	21400
TOTAL NORTH CASCADES NP	44	29230	7090	9630	45950
TOTAL WASHINGTON	185	89440	23130	14220	126790
TOTAL FOR REGION	207	94820	23390	14220	132430

Western Blackheaded Budworm, *Acleris Gloverana* (Wal.)

After a 2-year absence, the blackheaded budworm was again recorded during the aerial survey. Two infestation centers of approximately 800 acres were located on the Mt. Baker-Snoqualmie National Forest 6 miles north of Index. Defoliation was light.

EXTENT OF BLACK-HEADED BUDWORM
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL MT. BAKER-SNOQUALMIE NF	3	840	0	0	840
TOTAL WASHINGTON	3	840	0	0	840
TOTAL FOR REGION	3	840	0	0	840

Spruce Aphid, *Elatobium Abietinum* (Walker)

No spruce aphid damage was reported in Oregon. In Washington, the infested area declined 89 percent to 200 acres.

EXTENT OF SPRUCE APHID
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL OLYMPIC NF	1	20	0	0	20
TOTAL QUINAULT IR	1	40	0	0	40
TOTAL SOUTHWEST WA	3	50	0	0	50
TOTAL OLYMPIC NP	2	90	0	0	90
TOTAL WASHINGTON	7	200	0	0	200
TOTAL FOR REGION	7	200	0	0	200

Bear Damage

Acres of bear damage declined to 5 percent of that recorded during 1979. Only 40 acres were considered heavy. Only one light damage area of 80 acres was reported in Oregon. In Washington, nearly 90 percent of the damage was located on the Olympic and Mt. Baker National Forests.

EXTENT OF BEAR
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL WILLAMETTE NF	1	80	0	0	80
TOTAL OREGON	1	80	0	0	80
TOTAL GIFFORD PINCHOT NF	5	40	0	20	60
TOTAL MT. BAKER-SNOQUALMIE NF	12	370	320	20	710
TOTAL OLYMPIC NF	7	270	0	0	270
TOTAL QUINAULT IR	1	90	0	0	90
TOTAL SOUTHWEST WA	2	30	0	0	30
TOTAL WASHINGTON	27	800	320	40	1160
TOTAL FOR REGION	28	880	320	40	1240

Larch Casebearer, *Coleophora laricella* (Hbn.)

Populations of the larch casebearer varied over the region during 1980. Some serious defoliation occurred in the Camp Sherman area in the Central Oregon Cascades. Fall feeding populations are still high in this area and will probably cause heavy defoliation again in 1981. In other larch stands in Oregon, populations were generally lower than last year with light to moderate defoliation. In northeast and north-central Washington, the population trend has been upward the past few years. Defoliation was generally light with some heavy in local areas. Populations in the Cascade Mountains of Washington showed only local variation from last year.

Success of the imported parasite release program is now becoming evident by reduced numbers of larch casebearer at some of the earliest release sites in the Blue Mountains of Oregon. No new species of exotic parasites were released in 1980. *Chrysocharis laricinella* was released for the first time in the Cascade Mountains of Central Oregon at Camp Sherman. In a cooperative program between the USDA Forest Service, and Oregon State Department of Forestry, *Chrysocharis laricinella* was collected at Sherman Pass, Washington and relocated at Camp Sherman. In the Blue Mountains of northeast Oregon, *Chrysocharis laricinellae, Diadegma laricinellum, Dicladocerus westwoodii*, and *Dicladocerus japonicus* were relocated at new localities.

Sawflies

No sawfly activity was recorded in Oregon or Washington during the aerial detection survey.

Cone and Seed Insects

Douglas-fir cone and seed insect impact was generally light and scattered during 1980 because of the large extensive Douglas-fir cone crop. Some low elevation isolated areas supported large populations of Douglas-fir cone scale midge, *Contarinia washingtonensis* Johnson, and Douglas-fir cone moth, *Barbara colfaxiana* (Kearfott) which caused much of the damage. Western conifer seed bugs, *Leptoglossus occidentalis* Heidemann, were found, but their seed impact was light. The cones produced next season are expected to be heavily damaged by cone and seed insects.

Winter Damage

Little winter damage was observed during 1980. Damage was all light, and the area size was 96 percent less than during the 1978-79 winter. No damage was recorded south of the Mt. Hood National Forest.

EXTENT OF WINTER DAMAGE
IN 1980 BY REPORTING AREA AND INTENSITY OF INFESTATION

REPORTING AREA	NUMBER OF INFESTATION CENTERS	INTENSITY OF INFESTATION			
		LIGHT	MODERATE	HEAVY	TOTAL
		ACRES			
TOTAL MT. HOOD NF	7	540	0	0	540
TOTAL OREGON	7	540	0	0	540
TOTAL GIFFORD PINCHOT NF	5	320	0	0	320
TOTAL MT. BAKER-SNOQUALMIE NF	1	80	0	0	80
TOTAL WENATCHEE NF	3	210	0	0	210
TOTAL WASHINGTON	9	610	0	0	610
TOTAL FOR REGION	16	1150	0	0	1150

Ambrosia beetles, *Trypodendron, Gnathotrichus,* etc.

These beetles were found at scattered locations in the blast and flood damaged area of the Mount St. Helens volcanic area. Attacks were light during 1980 but are expected to increase as the moisture content of the damaged trees reaches an optimum degree for larval development. Pinholes and staining caused by these beetles may seriously degrade the timber being salvaged.

Gypsy Moth, *Lymantria Dispar* (L.)

In Washington, adult moths were trapped in Seattle, Vancouver, on Mercer Island, and in the University of Washington Arboretum. No signs of defoliation were observed, so no hosts are cited. No moths were trapped in the 1979 eradication project area in Renton.

In Oregon during 1980, gypsy moth pheromone traps were placed throughout the Portland area at 1/mi.^{2} plus 25/mi.^{2} south of Portland in Lake Oswego and Milwaukie, where two moths were taken during 1979. A total of 13 counties were trapped in western Oregon. One male moth was trapped in Tigard, one in Milwaukie, and one in Happy Valley. These towns are all just south of Portland. Four male moths were taken in a trap in south Salem in Marion County.

European pine shoot moth, *Rhyacionia Buoliana* (Sch.)

In Washington, there is a general infestation of ornamentals and nurseries in the Puget Sound area. There is still no record of reinfestation of the Spokane area where an eradication program was carried out in 1961. No surveys were conducted during 1980.

In Oregon, during 1980, pheromone traps were placed in 200 grower nurseries and 63 Christmas tree plantations in western Oregon. Residential areas adjacent to nurseries and tree farms where moths were trapped in 1979 were trapped also. Moths were captured at a Community College, a KOA Campground, a nursery, several mobile home courts, and other residential areas. Moths were taken at a total of five sites in Multnomah County, one in Clackamas County, one in Marion County, and two in Lane County.

DISEASE CONDITIONS IN BRIEF - 1980

Larch needlecast caused by *Hypodermella laricis* produced discoloration and premature defoliation of western larch foliage in northeastern Washington. The disease was most noticeable north of Newport along both sides of the Pend Oreille River to the Canadian border and along the Columbia River near Northport. Slightly less than 100,000 acres were mapped. Damage from the needlecast normally would not be expected to be serious, but larch in the same area had previously been defoliated by larch casebearers. Stands are being monitored to measure damage. Incidence of this disease will probably be quite high in 1981 because of the enormous spore load developing in the 1980 foliage.

Another foliage disease, Swiss needlecast, caused by *Phaeocryptopus gaumanni* has increased dramatically in Douglas-fir in western Washington and the northern half of western Oregon. Christmas tree growers are most severely affected, many have had to begin treating with fungicides to prevent continued damage. The disease is also becoming increasingly common in forest stands, but the damage is much less serious. Prognosis is for this disease to increase for at least the next few years because of the large quantity of inoculum present.

Larch needlecast caused by the fungus *Meria laricis* has damaged western larch seedlings at the Wind River Forest Nursery near Carson, Washington. Plans have been developed to evaluate the effectiveness of several fungicides in preventing infection.

Top dieback, branch killing, and stem cankering of lodgepole pine seedlings were caused by *Sirococcus strobilinus* at the Wind River Nursery. Applications of the fungicide Bravo seemed to be effective in preventing further damage. *Sirococcus* has also been observed killing the tips of densely stocked western hemlocks in understories. Damage, however, seems to be negligible.

White pine blister rust continues to be a very serious disease in Oregon and Washington. The most severe losses are occurring along the east side of the Cascades in Washington, around Middleport and Metaline Falls in northeast Washington, and along the crest of the Cascades in northern Oregon. Prospects for preventing losses look good because of the increasing availability of resistant trees.

Dwarf mistletoes are serious pathogens throughout practically all of Oregon and Washington. Losses caused by these pests are slowly but steadily declining as stands are being thinned and managed to shorter rotations.

Branch killing in grand fir east of Bend, Oregon has become highly noticeable. This disease is caused by canker fungi infecting and killing branches infected by dwarf mistletoes. The reason for the increase in this disease is not known.

Root rots have become increasingly important and destructive diseases in Oregon and Washington forests. Frequency of their occurrence is increasing. Black stain root disease is increasing throughout the region, especially in the Coos Bay area. This disease was recently found killing western hemlocks of all sizes in a stand near Estacada, Oregon. *Phytophthora* root disease of Port-Orford cedar continues to decimate Port-Orford cedar stands in southwestern Oregon. It is almost impossible to find a western hemlock stand that does not contain *Fomes annosus*. However, losses to this disease appear to be small in stands less than 120-years old. Recent surveys in southern and eastern Oregon have measured a high incidence of annosus root and butt rot in true fir stands that have had some form of partial cutting. Annosus root and butt rot may be becoming the most serious pest in managed true fir stands.

Laminated root rot is estimated to be responsible for removing about 5 percent of the Douglas-fir type from production.

Dutch elm disease was not reported in any additional Washington counties. Walla Walla remains the only county where it has been found. In Oregon, the disease is found in Nyssa, Ontario, and Union.